

This Page Is Inserted by IFW Operations
and is not a part of the Official Record

BEST AVAILABLE IMAGES

Defective images within this document are accurate representation of
The original documents submitted by the applicant.

Defects in the images may include (but are not limited to):

- BLACK BORDERS
- TEXT CUT OFF AT TOP, BOTTOM OR SIDES
- FADED TEXT
- ILLEGIBLE TEXT
- SKEWED/SLANTED IMAGES
- COLORED PHOTOS
- BLACK OR VERY BLACK AND WHITE DARK PHOTOS
- GRAY SCALE DOCUMENTS

IMAGES ARE BEST AVAILABLE COPY.

**As rescanning documents *will not* correct images,
please do not report the images to the
Image Problem Mailbox.**

10/089068

3 Rec'd PCT/PTO 05 APR 2002

FILE 'WPIDS'

COPYRIGHT (C) 2002 DERWENT INFORMATION LTD

FILE LAST UPDATED: 21 MAR 2002 <20020321/UP>

MOST RECENT DERWENT UPDATE 200219 <200219/DW>

DERWENT WORLD PATENTS INDEX SUBSCRIBER FILE, COVERS 1963 TO DATE.

=> S JP07256537/PN

L1

L2 1 JP07256537/PN

L2 ANSWER 1 OF 1 WPIDS COPYRIGHT 2002 DERWENT INFORMATION LTD

ACCESSION NUMBER: 1996-001651 [01] WPIDS

DOC. NO. NON-CPI: N1996-001399

TITLE: Control method for machine tool - using control model to effect regulation such that actual machining state is brought as near as possible to target machining state.

DERWENT CLASS: P56 P62 T06 X25

PATENT ASSIGNEE(S): (HITK) HITACHI METALS LTD

COUNTRY COUNT: 1

PATENT INFORMATION:

| PATENT NO | KIND | DATE | WEEK | LA | PG | MAIN | IPC |
|-------------|------|----------|-----------|----|----|------------|-----|
| JP 07256537 | A | 19951009 | (199601)* | | 13 | B23Q015-12 | <-- |

APPLICATION DETAILS:

| PATENT NO | KIND | APPLICATION | DATE |
|-------------|------|---------------|----------|
| JP 07256537 | A | JP 1994-49226 | 19940318 |

PRIORITY APPLN. INFO: JP 1994-49226 19940318

INT. PATENT CLASSIF.:

MAIN: B23Q015-12

SECONDARY: B25J009-18; B25J013-08; G05B013-02; G05B013-04; G05D015-01

BASIC ABSTRACT:

JP 07256537 A UPAB: 19960108

The method carries out movement of a tool relative to that of a workpiece. External force is applied to the tool and consequently it moves towards the workpiece. A mechanical impedance method is built using a process impedance model to temper the state of operation. During the tempering, relative movement of the tool with respect to the workpiece and the external force being applied, are taken into account.

A process model is used to describe the process being carried out and target movement is decided according to the target machining state. Then using a control model, relative movement of the tool and external force to be applied, are controlled simultaneously. The control is effected keeping the target machining state as the aim.

ADVANTAGE - Raises accuracy in amending shape of workpiece being processed. Obtains optimum relation to exist between external force and

relative movement of tool with respect to workpiece.

Dwg.1/10

FILE SEGMENT: EPI GMPI

FIELD AVAILABILITY: AB; GI

MANUAL CODES: EPI: T06-A05; T06-B12; T06-D06; X25-A03

=>

INTERNATIONAL SEARCH REPORT

International application No.
PCT/SE 00/01917

A. CLASSIFICATION OF SUBJECT MATTER

IPC7: G05B 13/04, G05B 17/02
According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC7: G05B

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

SE,DK,FI,NO classes as above

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

C. DOCUMENTS CONSIDERED TO BE RELEVANT

| Category* | Citation of document, with indication, where appropriate, of the relevant passages | Relevant to claim No. |
|-----------|--|-----------------------|
| A | WO 9504878 A1 (PAVILION TECHNOLOGIES, INC.), 16 February 1995 (16.02.95), page 24, line 12 - line 23, figures 1,15, abstract -- | 1-40 |
| A | US 5375448 A (Y. KATAYAMA ET AL), 27 December 1994 (27.12.94), see the whole document -- | 1-40 |
| A | US 4755925 A (M. TSUCHIYA ET AL), 5 July 1988 (05.07.88), see the whole document -- | 1-40 |
| A | US 5402333 A (D. CARDNER), 28 March 1995 (28.03.95), see the whole document -- | 1-40 |

 Further documents are listed in the continuation of Box C. See patent family annex.

| | |
|---|--|
| * Special categories of cited documents: | |
| "A" document defining the general state of the art which is not considered to be of particular relevance | "I" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention |
| "E" earlier application or patent but published on or after the international filing date | "X" document of particular relevance: the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone |
| "J" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified) | "Y" document of particular relevance: the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art |
| "O" document referring to an oral disclosure, use, exhibition or other means | "&" document member of the same patent family |
| "P" document published prior to the international filing date but later than the priority date claimed | |

Date of the actual completion of the international search

13 December 2000

Date of mailing of the international search report

17-01-2001

Name and mailing address of the ISA/
Swedish Patent Office
Box 5055, S-102 42 STOCKHOLM
Facsimile No. +46 8 666 02 86Authorized officer
Jesper Bergstrand/LR
Telephone No. +46 8 782 25 00

INTERNATIONAL SEARCH REPORT

International application No.

PCT/SE 00/01917

C (Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT

| Category* | Citation of document, with indication, where appropriate, of the relevant passages | Relevant to claim No. |
|-----------|--|-----------------------|
| A | <p>Patent Abstracts of Japan, abstract of JP 7-256537 A (HITACHI METALS LTD), 9 October 1995 (09.10.95), see abstract and figure</p> <p>--</p> | 1-40 |
| A | <p>US 4630189 A (K. OHMORI ET AL), 16 December 1986 (16.12.86), see the whole document</p> <p>--</p> <p>-----</p> | 1-40 |

INTERNATIONAL SEARCH REPORT

Information on patent family members

04/12/00

International application No.

PCT/SE 00/01917

| Patent document cited in search report | Publication date | Patent family member(s) | | Publication date |
|--|------------------|-------------------------|--------------|------------------|
| WO 9504878 A1 | 16/02/95 | AU | 677694 B | 01/05/97 |
| | | AU | 688353 B | 12/03/98 |
| | | AU | 7375894 A | 28/02/95 |
| | | AU | 7477694 A | 28/02/95 |
| | | CA | 2167588 A | 16/02/95 |
| | | CA | 2167927 A | 16/02/95 |
| | | DE | 69418199 D,T | 30/12/99 |
| | | DE | 69423895 D | 00/00/00 |
| | | EP | 0712463 A,B | 22/05/96 |
| | | SE | 0712463 T3 | |
| | | EP | 0712509 A,B | 22/05/96 |
| | | JP | 9501782 T | 18/02/97 |
| | | JP | 9504346 T | 28/04/97 |
| | | US | 5386373 A | 31/01/95 |
| | | US | 5539638 A | 23/07/96 |
| | | US | 5548528 A | 20/08/96 |
| | | US | 5682317 A | 28/10/97 |
| | | WO | 9504957 A | 16/02/95 |
| US 5375448 A | 27/12/94 | DE | 3854784 D,T | 10/10/96 |
| | | EP | 0328678 A,B | 23/08/89 |
| | | JP | 1044503 A | 16/02/89 |
| | | JP | 2013247 C | 02/02/96 |
| | | JP | 7046282 B | 17/05/95 |
| | | WO | 8901654 A | 23/02/89 |
| | | JP | 1057303 A | 03/03/89 |
| | | JP | 2609621 B | 14/05/97 |
| US 4755925 A | 05/07/88 | CA | 1259700 A | 19/09/89 |
| | | DE | 3689800 D,T | 13/10/94 |
| | | EP | 0216356 A,B | 01/04/87 |
| | | JP | 1898912 C | 23/01/95 |
| | | JP | 6025930 B | 06/04/94 |
| | | JP | 62070914 A | 01/04/87 |
| US 5402333 A | 28/03/95 | EP | 0646257 A | 05/04/95 |
| | | JP | 7507894 T | 31/08/95 |
| | | WO | 9325944 A | 23/12/93 |
| US 4630189 A | 16/12/86 | AU | 546309 B | 29/08/85 |
| | | AU | 2919084 A | 13/12/84 |
| | | DE | 3421522 A,C | 13/12/84 |
| | | GB | 2142758 A,B | 23/01/85 |
| | | GB | 8414866 D | 00/00/00 |
| | | JP | 1762421 C | 28/05/93 |
| | | JP | 4047842 B | 05/08/92 |
| | | JP | 59229622 A | 24/12/84 |
| | | US | 4892379 A | 09/01/90 |